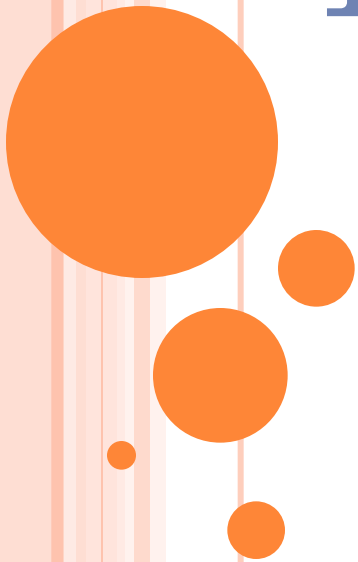


Choice of Technique



TOPICS

- Meaning of Technique
- Technical Progress and Economic Development
- Types of Technique
- Meaning of Choice of Technique
- Intermediate Technique
- Factors Influencing the Choice of Technique
- Appropriate Technology
- Difficulties in the Choice of Technology



MEANING OF TECHNIQUE

Technique means a particular technical form of investment expressed as an a input combination with varying capital output and capital labour ratios.




DEFINITION

G. Mathew has defined a technique “ as a set of processes which is self sufficient except as regards natural factors and labour”.

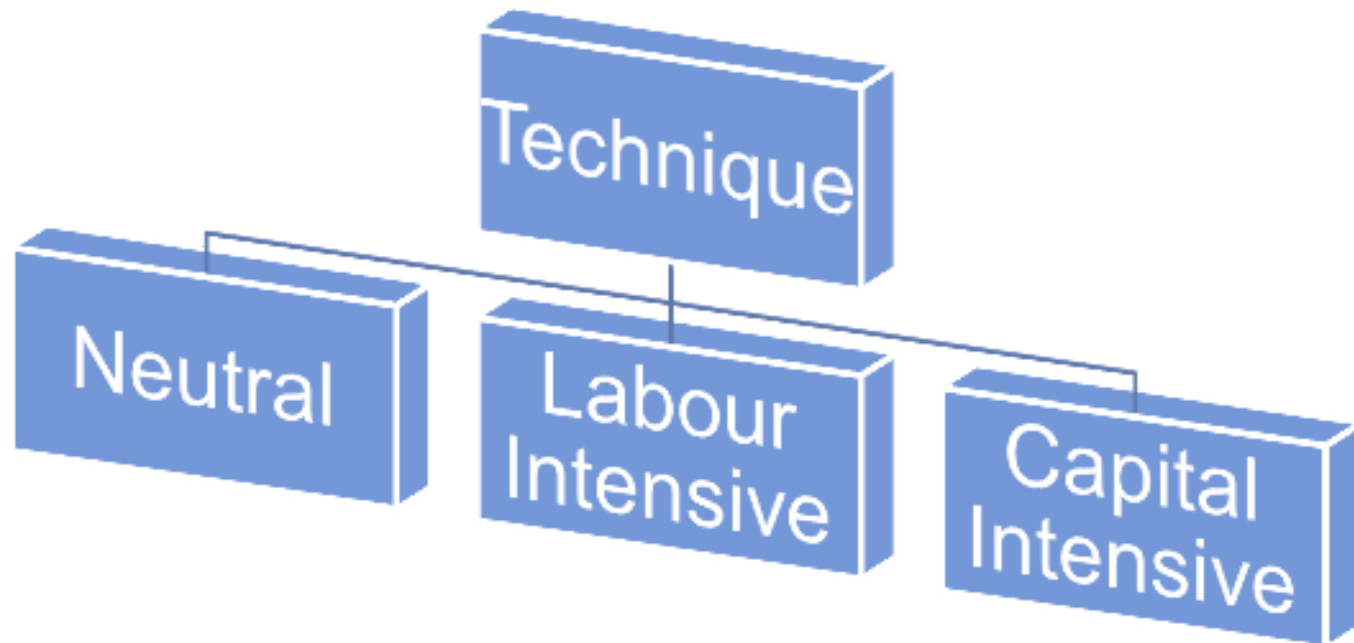
According to **Schumpeter**,. technical progress is the result of invention and innovations. Invention is the discovery of some new technique. Innovation consist in the practical application of an invention to production for market



TECHNICAL PROGRESS AND ECONOMICAL DEVELOPMENT

- ▣ **Intensive utilization and resources** : Technical progress helps intensive utilization of the available resources
 - ▣ **Use of Potential Resources** : Technical progress facilitates the discovery and utilization of potential resources of the nation .
 - ▣ **Contribution of Imports Substitution** : An under developed country utilizes her technological progress in the field of import substitution so that, lot of foreign exchange is saved for the import for essential raw material and capital goods.
 - ▣ **Growth of Infrastructure** : Technological progress helps the growth of infrastructure of the economy transport, communication power and irrigation are some such basic facilities in the development.
 - ▣ **Increase in the Efficiency of Human Resources** : Technical progress increases the economy of human resources. Labour intensive .
 - ▣ **Rapid Increase of Industrialization** : Growth of Industrialization depends upon the growth and application of new technology.
 - ▣ **Green Revolution** : Green revolution in agriculture was to a great extent the outcome of technological progress. New seed and fertilizer and method of technological progress.
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TYPES OF TECHNIQUES



NEUTRAL TECHNIQUE

Neutral Technique is that technique, by which at any constant value of capital-labour ratios, the ratio of marginal product of capital to that of labour remains constant. If ΔK_1 and ΔL_1 denote marginal productivity of capital and labour, respectively, before the application of technique and ΔL_2 and ΔK_2 denote the marginal productivity of labour and capital after the application of technique, then

$$\Delta K_2 / \Delta L_2 = \Delta K_1 / \Delta L_1$$

(Neutral Technological Progress)



LABOUR INTENSIVE TECHNIQUE

Labour Intensive technique is one which uses larger amount of labour and smaller amount of capital. According to **Reddeway**, “Labour intensive technique is one in which larger amount of labour combined with smaller amount of capital”. Thus, labour intensive technique is that technique by which at constant value of capital-labour ratio, the ratio of marginal product of capital to that of labour is decreasing. Thus, in such a technique, more of labour and relatively less of capital is used.

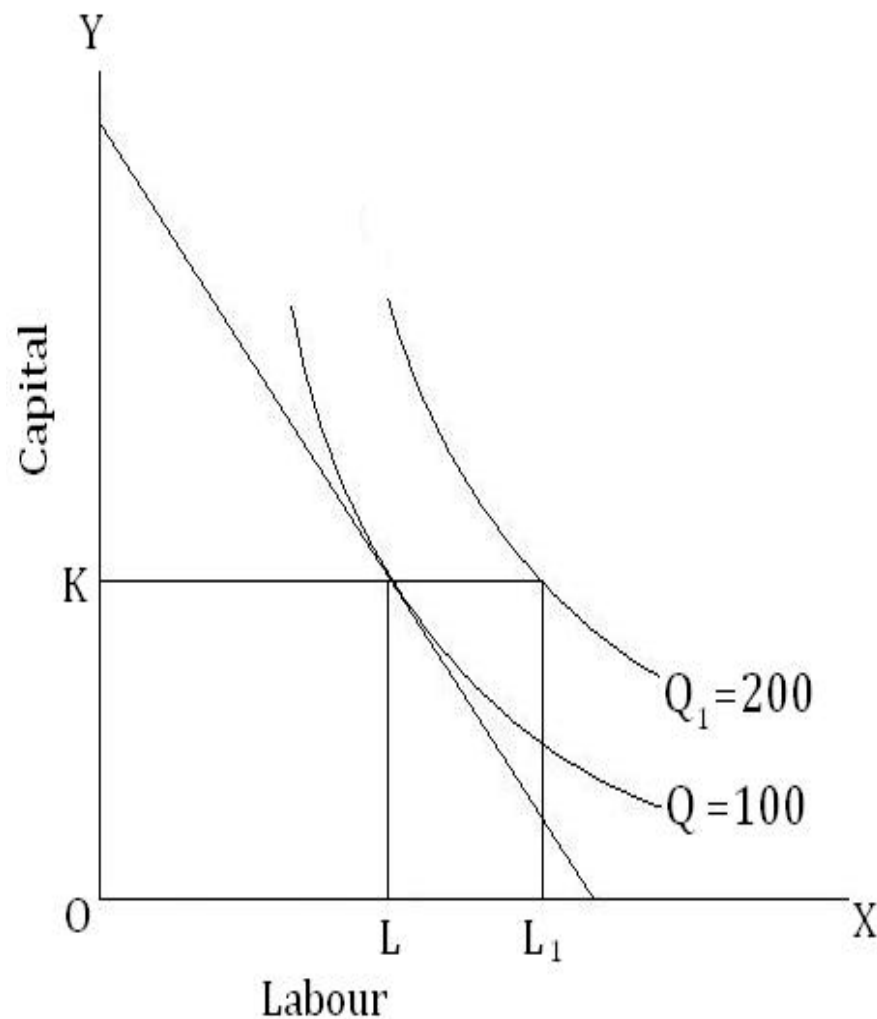
$$\Delta K_2 / \Delta L_2 < \Delta K_1 / \Delta L_1$$

(Labour Intensive Technique)



This fig. shows labour intensive technique. X-axis of the diagram shows labour and Y-axis shows capital. Q and Q_1 are the Isoquants. Curve Q indicates that to produce 100 units of output, OL of labour and OK of capital are needed.

In case 200 units are to be produced (that is to be shifting from Q and Q_1), the quantity of labour is to be constant. This shows that, labour intensive technique facilitates increase in output with increased application of labour, keeping the application of capital as constant.



CAPITAL INTENSIVE TECHNIQUE

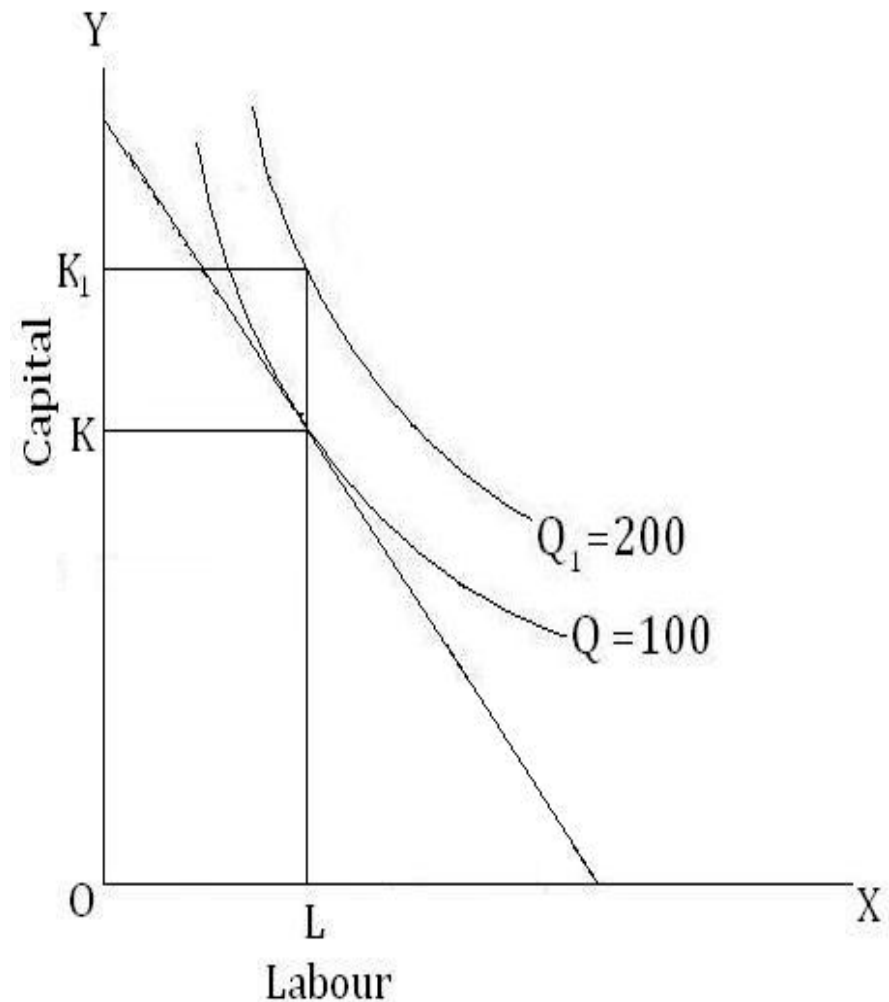
In such a technique more of capital is used in relation to labour. In the words of **Prof. Hicks**, “Capital intensive technique is that technique by which at constant value of capital-labour ratio, the ratio of marginal product of capital to that of labour is increasing”.

$$\Delta K_2 / \Delta L_2 > \Delta K_1 / \Delta L_1$$

(Capital Intensive Technique)



Fig explains the concept of capital intensive technique. X-axis of the diagram shows labour and Y-axis shows capital, Q and Q_1 are Isoquants. Curve Q shows that in order to produce 100 units of output, OK amount of capital and OL amount of labour are needed. If 200 units are to be produced, that is, if we want to shift on to Q_1 , OK_1 amount of capital is needed, keeping the application of labour as constant. The fig thus indicates the application of capital intensive technology.



MEANING OF CHOICE OF TECHNIQUE

Maximizing the rate of growth by way of optimum utilization of the scarce resources is the principal objective of every underdeveloped country.

The choice of technique refers to choosing amongst the various possible ways of combining factor input to produce a given set of goods and services at the minimum cost.

These 'ways' or techniques may be labour intensive, capital intensive or some intermediate 'ways' of producing goods and services.

While choosing the technique, the emphasis should primarily be upon the one that reduce the cost of production.



ARGUMENTS IN FAVOR OF LABOUR INTENSIVE TECHNIQUES


- ❑ **Increase in Employments** : There is serious problem of unemployment. Labour intensive techniques can help creating more job opportunities
- ❑ **Increase in the Size of Market** : Due to labour intensive techniques more people are employed. as a result, income level rises leading to rise in the consumption level. All these implies enlargement of market.
- ❑ **Price stability** : Labour intensive technique facilitates quick production of consumer goods. Supply thus remain in assonance with demand. Price stability is assured.
- ❑ **Decentralization** : Labour intensive technology can be easily adopted in villages and suburbs. So that, decentralization becomes possible, saving expenses on social overheads.
- ❑ **Industrial Peace**: Labour intensive technique is more conducive to small scale enterprises. Industrial relation are generally good in enterprises. Disputes are mutually settled.
- ❑ **Reduction in Inequalities of Income** : It lead to reduction in inequalities of the income. Such techniques tends to raise the income level of relatively larger number of low income workers.
- ❑ **Short Gestation Period** : These techniques based on indigenous technology are less mechanized and have a short gestation periods

ARGUMENTS AGAINST LABOUR INTENSIVE TECHNIQUES

- ❑ **Less Efficient** : Labour intensive technique is generally less efficient in under developed countries.
- ❑ **Not capital saving** : Labour intensive technique may ultimately prove to be more capital intensive than the capital intensive technique themselves.
- ❑ **Unsuitable for Modernizing and Computerization** : In the era of modernization and computerization, labour intensive technique will not serve the purpose of modernizing the economy .
- ❑ **Lopsided Development** : The labour intensive technique would not be able to promote heavy industries thus it will result in lopsided development of the economy.
- ❑ **Fails to Maximize the Rate of Economic Growth** : Labour intensive technique may help in achieving immediate output maximization but it fails to maximize the rate of economic growth.



ARGUMENTS IN FAVOUR OF CAPITAL INTENSIVE TECHNIQUE

- ❑ **Efficient Production** : Use of modern machine becomes possible with the capital intensive production. Maximum output is attained at lowest possible cost.
 - ❑ **Decrease in Prices** : Cost of production are reduced with the adoption of capital intensive technique of production reduction in the cost of production causes reduction in prices.
 - ❑ **Long Term Benefits** : It has long term influence on the process of growth. The process of growth becomes self sustained and continuous increase in national income.
 - ❑ **Economies of Production** : Capital intensive technique generates more economies than the labour intensive technique of production.
 - ❑ **Encouragement of Entrepreneur** : In the enterprises adopting capital intensive technology, profit constitute a large part of the total returns. This provides necessary encouragement to the entrepreneur.
 - ❑ **Development of Infrastructure** : Large scale industries are established with the adoption of capital intensive technology. The development of social overheads accelerate the process of growth.
 - ❑ **Higher standard of Living** : People in advanced countries of the worlds are able to enjoy the higher standards of living with the adopting of capital intensive technique.
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ARGUMENTS AGAINST CAPITAL INTENSIVE TECHNIQUES

- ❑ **Creates Unemployment :** The capital Intensive technique replaces labour with machines in other words the immediate result of its application will be unemployment of labour.
- ❑ **Increase Inequality :** The use of capital intensive technique even in modern mixed economies leads to an increase in equality of income and wealth.
- ❑ **Increase in Prices :** The Shortage of consumer goods which is bound to have inflationary effect in view of rapid increase in monetary demand in the economies.
- ❑ **Adverse Balance of Payments :** The use of capital intensive technique by the underdeveloped countries may result in their adverse balance of payment.
- ❑ **High Maintenance Costs :** The maintenance of capital equipment used in capital intensive techniques will also be costly. The import of machinery and equipment may cause in many problems regarding their repairs maintenance and availability in spare parts. So that they remain under utilized.
- ❑ **Wasteful Use of Capital Resources :** An important criticism of capital intensive technique is that it involves a wasteful use of meager capital resources of underdeveloped countries.



INTERMEDIATE TECHNIQUE

Choice of technique is an important problem in the context of industrialization of underdeveloped countries like India. But in countries like India with scarcity of capital in assonance with large population and huge unemployment and the accelerate rate of growth it would not be wise to depend upon the labour intensive techniques. So it is the inevitable like companies in India.

Prof. S.C. Schumpeter, According to him from the viewpoint of sustained growth, neither the labour intensive nor the capital intensive technique is entirely feasible. Rising unemployment in these countries suggests the adoption of intermediate Technology is that technology which involves around £70 and £100 equipment cost per average of work place.

NATURE OF INTERMEDIATE TECHNIQUE

1. Work places are to be established in villages and towns, not in big cities.
2. These workplaces should be involve low cost and minimum inputs, particularly the capital.
3. Methods of production should be simple so that the demand for 'Higher Skills' or highly educated persons is kept low.
4. Production should largely be based upon local materials and local workers.
5. There must be facility of repair at the door step.



NEED OF INTERMEDIATE TECHNIQUE

- ❑ **Unemployment** : To eradicate this problem, it is essential that enterprises requiring less capital are spread in the country. This would require the adoption of intermediate technique.
- ❑ **Migration From Rural Areas** : In the underdeveloped countries, people have the tendency to migrate from rural to urban areas. To check this tendency, it is required that intermediate technology is adopted, so that the job opportunities are created in the rural areas itself.
- ❑ **Scarcity of Capital** : It is establish such enterprises which require comparatively less capital investment. Intermediate technology requires less- capital, and can be easily adopted.
- ❑ **Simple Process** : Skilled workers are in scarce supply in less developed countries. It is therefore advisable that simple methods of production are adopted.


IMPORTANCE OF INTERMEDIATE TECHNIQUE

- ❑ **Dual Economy** : Dual economy is expected to exist in underdeveloped countries for a fairly long period of time. Modern technology is not applicable across all sectors of such an economy. So that, intermediate technology is to be inevitably adopted.
- ❑ **Traditional Sector** : Intermediate technology becomes important for the development of traditional sector ant to check the problems of unemployment and urbanization.
- ❑ Intermediate technology is important for improving the economic conditions of poor people.
- ❑ In underdeveloped countries with the scarcity of capital and abundance of labour, intermediate technology should be adopted to fulfill the objective of full employment.


FACTOR INFLUENCING THE CHOICE OF TECHNIQUE

- ❑ **Objective of Development** : Maximization of employment, maximization of investment, maximization of output at lowest possible upon other countries, etc. All these are the choice of technique.
- ❑ **Prevailing Factors Endowment** : To a great extent, the choice of technique in underdeveloped countries depends upon the prevailing factor endowment. Factor endowment can not be changed during the short period. So that technique is to be compatible with the existing resource-endowment.
- ❑ **Technological Level Already Attained** : In every country there is some existing level of technology. Such a technique should be adopted which is compatible with the existing technique.
- ❑ **Available Resources** : Resources available in the country has an important place amongst different resources. Various imbalances may develop into the system. So that the resources availability must be kept in mind while choosing the technique of production.
- ❑ **Institutional Changes** : Economics, social, religious and political institutional of the technique. An appropriate institutional set up would be required for such social reformation.
- ❑ **Availability of Infrastructure** : the existing infrastructure comprising of transport, communication, power and related facilities in the country. Such techniques are to be preferred which are compatible with the existing infrastructure of the country.

APPROPRIATE TECHNOLOGY

1. The technology should be as short as possible.
 2. Gestation period involved should be as short as possible.
 3. It requires less of skilled workers.
 4. It should raise the level of output and stimulate the supply of minerals and power.
 5. It saves scarce resource in place of labour.
 6. It yields maximum output per unit of capital by way of intense utilization of capital.
 7. It is capable of incompatible improvements relating to complex technological changes.
 8. It is compatible with the spread of productive activities across various sectors of the economy.
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DIFFICULTIES IN THE CHOICE OF TECHNOLOGY

- ❑ **Scarcity of Capital** : In underdeveloped countries there is the scarcity of both capital and skilled manpower. So the adoption of new technology becomes difficult.
 - ❑ **Illiteracy** : Majority of the population in underdeveloped countries is illiterate. It is difficult to acquaint them with new technology.
 - ❑ **Different Conditions** : Many types of technology developed in advanced in advanced nations may not suit underdeveloped world. Techniques of developed nations may not suit underdeveloped countries also because their level of industrialization is different.
 - ❑ **Scarcity of Innovators** : Discovery and adoption of new technology presuppose the existence of able innovators.
 - ❑ **Capital Intensive** : Technology of the developed nations is largely capital intensive. Scarcity of labour results in high wage rate in these countries.
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SUGGESTIONS

- ❑ Use of Labour Intensive Techniques : Underdeveloped countries should rely primarily upon labour labour-intensive technology. Such techniques should be, as far as possible, indigenously developed.
- ❑ Co-ordination of Different Techniques : Co-ordinating the various possible techniques, the one that accelerates the process of growth should be adopted. Also, new technology should be compatible with the existing technology.
- ❑ Research : While adopting the technology of advanced countries, less developed countries should make suitable modifications.
- ❑ Minimum Costs : Less developed countries should so choose between different techniques of production that marginal productivity of the factors in their alternative uses is equalized. In such a situation, costs of production would be minimum.
- ❑ Import of Techniques : Technology may be imported from abroad but only from those countries which assure of continuous maintenance of the hi-tech machinery and equipment.
- ❑ Training : Underdeveloped Countries should arrange for the training of their workers. This would facilitate the adoption of new technology.
- ❑ Maximum Surplus : Underdeveloped countries should adopt such technology that generates maximum possible surplus. This would stimulate the rate of growth.

